CLAIMS

1. A bearing provided with an annular means generating magnetic pulses and with a device for detecting these pulses, wherein the detection device comprises a plurality of aligned sensitive elements (5).

2. The bearing as claimed in claim 1, wherein the sensitive elements are chosen from among the groups comprising Hall-effect probes, magnetoresistors, giant magnetoresistors.

3 The bearing as claimed in claim 1 or 2, wherein the sensitive elements are placed equidistantly from one another.

4. The bearing as claimed in any one of claims 1 to 3, wherein the pulse generating means is an annular member which is made of a synthetic material laden with ferrite particles and is formed by a plurality of contiguous domains having reversed direction of magnetization of a given domain with respect to the two domains which are contiguous with it.

5. The bearing as claimed in any one of claims 1 to 4, wherein the detection device comprises an even number 2N of sensitive elements.

6. The bearing as claimed in claim 5, wherein the assembly of 2N sensitive elements is divided into two subassemblies (8, 9) of N elements, each sensitive element (5) of the first subassembly (8) being connected to a first adder (10), each sensitive element (5) of the second subassembly (9) being connected to a second adder (11), the two sums (S_1, S_2) emanating from the first and second adders (10, 11) being connected to the

input of a third adder (12), the output (S_1) of the first adder (10) and, via an inverter (13), the output (S_2) of the second adder (11) being connected to the input of a fourth adder (14), the signals SIN = $S_1 + S_2$ and COS = $S_1 - S_2$ emanating from the third (12) and fourth adders (14) being processed by a circuit so as to deduce the direction of rotation and/or the speed or rotation and/or the position of the pulse generating means with respect to the detection device.

7. The bearing as claimed in claim 6, wherein the polar length (Lp) of the encoder is substantially equal to the product of the number (2N) of sensitive elements (5) times the distance (d) between sensitive elements, the signals SIN and COS then being in substantially perfect quadrature and of substantially like amplitude.

8. The bearing as claimed in claim 6, wherein the polar length (Lp) of the encoder is less than the product of the number (2N) of sensitive elements (5) times the distance (d) between sensitive elements.

9. The bearing as claimed in claim 6, wherein the polar length (Lp) of the encoder is greater than the product of the number (2N) of sensitive elements (5) times the distance (d) between sensitive elements.

10. The bearing as claimed in claim 9, wherein, by programming, an even number (2M) of sensitive elements, less than the total number (2N) of these elements (5) is employed to form two subassemblies of M elements, each sensitive element (5) of the first subassembly being connected to a first adder, each sensitive element of the second subassembly being connected to a second adder, the

two sums emanating from the first and second adders being connected to the input of a third adder, the output of the first adder and, via an inverter, the output of the second adder being connected to the input of a fourth adder, the signals emanating from the third and fourth adders being processed by a circuit so as to deduce the direction of rotation and/or the speed or rotation and/or the position of the pulse generating means with respect to the detection device, said signals being in substantially perfect quadrature.

11. The bearing as claimed in claim 10, wherein the programming is carried out by EEPROM.

12. The bearing as claimed in claim 10, wherein the programming is carried out by Zener Zapping.

13. The bearing as claimed in claim 8 or 9, wherein an amplifier circuit is able to re-establish an identical amplitude for the signals emanating from the third and fourth adders.

14. The bearing as claimed in one of claims 1 to 13, wherein the detection device comprises a number of sensitive elements (5) which is a multiple of four.

15. The bearing as claimed in claim 14, wherein the assembly of 4P sensitive elements is divided into four subassemblies of P elements,
- each sensitive element (5) of the first subassembly with P elements being connected to a first adder supplying a signal S_1;
- each sensitive element (5) of the second subassembly with P elements being connected to a second adder supplying a signal S_2;

- each sensitive element (5) of the third subassembly with P elements being connected to a third adder supplying a signal S'_1;
- each sensitive element (5) of the fourth subassembly with P elements being connected to a fourth adder supplying a signal S'_2;

a circuit of adders and of inverters supplying two signals SIN and COS respectively equal to:

$SIN = (S_1-S_2)-(S'_1-S'_2)$;

$COS = (S_1+S_2)-(S'_1+S'_2)$;

these signals SIN and COS being devoid of magnetic offset.

16. The bearing as claimed in claim 15, wherein the detection device comprises an interpolator increasing the resolution of these output signals.

17. The bearing as claimed in any one of claims 1 to 16, wherein the sensitive elements are integrated on an ASIC type circuit support.

18. The bearing as claimed in claim 17, wherein the detection device is incorporated within an ASIC type customized integrated circuit.

19. The bearing as claimed in one of claims 1 to 18, wherein the pulse generating means is integrated into a preassembled assembly forming a seal.

20. The bearing as claimed in claim 19, wherein the detection device is secured in a possibly removable manner to the fixed race.